Ahmet Burak Kara
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PROFESSIONAL SUMMARY

Electrical and Electronics Engineering student specialized in **autonomous navigation** and **distributed computing**. Demonstrated success in implementing path-finding algorithms and **safety-critical systems** during engineering internships at **TEI** and **BMC Automotive**. Highly proficient in **C/C++, Python, and ROS2**, with a focus on developing high-performance embedded solutions and real-time system integration.

EDUCATION

Istanbul Medeniyet University **Istanbul, TR**
B.S. in Electrical & Electronic Engineering *09/2021 – Present*

EXPERIENCE

TUSAŞ Engine Industries Inc. (TEI) **Eskisehir, TR**
Engineering Intern *08/2024 – 09/2024*

- Collaborated with both embedded software design and hardware design teams.
- Developed safety-critical **aviation software** with **DO-178C standards**.
- Actively contributed to the execution and monitoring of TEI PD-170 turbo-diesel engine performance tests, ensuring data accuracy during safety-critical evaluation cycles.

BMC Otomotiv Sanayi ve Ticaret A.Ş. **Izmir, TR**
Engineering Intern *08/2023 – 09/2023*

- Collaborated with BMC Automotive's **R&D department**, integrating hardware and software systems for an autonomous military vehicle.
- Contributed to both hardware and software aspects of the project, collaborating closely with interdisciplinary teams.
- Applied **path-finding** algorithms such as **A*** and **RRT** using the **C/C++** programming language as well as **ROS2** and **CARLA** simulation environments.

PROJECTS

Distributed Computation on GPUs, TUSAŞ LiftUp, Supported by TÜBİTAK 2209-B, 2025 **Istanbul, TR**
Undergraduate Researcher *11/2024 – 11/2025*

- Developed a distributed training infrastructure for **heterogeneous** GPU nodes at TUSAŞ using a **custom TCP/socket-based** communication layer.
- Optimized the YOLOv8 pipeline through **hardware-eligibility checks** and **dynamic workload scheduling** on **asymmetric systems**.
- Achieved **73% convergence** toward ideal training time, significantly reducing model training duration and securing **TÜBİTAK 2209-B funding**.

Autonomous Unmanned Surface Vehicle "Barba-Rossa" (Teknofest 2019 – Finalist) **Istanbul, TR**
Team Leader *09/2018 – 09/2019*

- Led a 3-person team to the national finals of the Teknofest "Robotik Fetih 1453" challenge with an autonomous USV.
- Developed **computer vision** and **mission-execution systems** using **OpenCV, NumPy, and C** for **autonomous navigation** and **target retrieval**.
- Engineered **autonomous obstacle avoidance** and **projectile mechanisms**, successfully completing complex mission objectives.

SKILLS & INTERESTS

- Control Systems, Robotics, Autonomous Systems, Embedded Systems, Distributed Computation, Simulations
- C/C++, Python, ROS2, CUDA, SolidWorks, Proteus, AutoCAD, Adobe Photoshop
- English (Fluent, **YDS: 78.75**), Turkish (Native)